

RESEARCH BRIEF



July 2009

Pediatric Emergency Department Visits, 2006

Introduction

During 2006, Florida residents made over 6.8 million visits to hospital emergency departments (ED). Pediatric ED visits comprised more than 22 percent of all ED visits. Because of the cost of healthcare and concerns about the quality of care received by patients, policy makers and health care providers seek to identify areas where lower cost can be achieved while improving the quality of care. Analysis of pediatric emergency department utilization patterns may provide insight into identifying conditions for which emergency department utilization could potentially be avoided. This report provides state level statistics on emergency department utilization for Florida residents younger than 18 years in 2006.

Data and Methodology

The data used in this Statistical Brief are patient discharge records from the Florida Agency for Health Care Administration (AHCA) emergency department database and discharge records from the inpatient hospital database. The records in the AHCA emergency department database and inpatient hospital database are collected from all licensed hospitals and hospital emergency departments in Florida. Inpatient discharge records are included for pediatric ED visits that resulted in an inpatient admission.

The unit of analysis is the patient discharge record. This means that an individual discharged from an emergency department multiple times during the year will be counted each time as a unique patient discharge record. The patient discharge record consists of patient demographic information, medical diagnosis, services received, and charges for the visit.

This report is limited to 2006 discharges for Florida residents. A Florida resident is an individual whose place of residence was a Florida county at the time of discharge. The data consist of outpatient and inpatient ED discharges. An inpatient ED discharge is an inpatient hospital discharge record with the emergency department as the source of admission. An outpatient ED visit is an emergency department visit record not resulting in an inpatient admission. A pediatric patient record is defined as a Florida resident discharge or visit for a child or adolescent younger than age 18 years. Adult is defined as a visit or discharge for a Florida resident age 18 years or older.

This report uses 2006 emergency department data certified complete as of March 16, 2009¹. Population estimates for 2006 are from the Florida Legislature, Office of Economic and Demographic Research (Table 9).

¹ Note: Data certified as complete may be changed later as circumstances warrant

Bootstrap sampling is used to test for statistically significant differences between rates. A difference in rates is called statistically significant if the difference is unlikely to have occurred due to natural variation. This means that there is statistical evidence that the rates being compared are different. In this brief, a difference is considered significant at the 0.05 level if the probability that the observed difference is due to natural variation is five percent or less. This report uses the term significant to mean statistically significant.

Findings

Overall Findings

Table 1 shows the characteristics of ED visits in 2006. In 2006, Florida residents made over 6.8 million ED visits of which 1,502,631 (22 percent) were pediatric ED visits for children and adolescents younger than age 18. Pediatric ED visits were less likely to result in an inpatient hospitalization. The vast majority of pediatric ED patients were treated and released from hospital emergency departments. Only 5.2 percent of pediatric ED visits resulted in an inpatient hospitalization, whereas, more than 23 percent of adult ED visits resulted in an inpatient hospitalization. The average charge of \$1,930 for a pediatric ED visit was nearly 80 percent less than the average charge of \$9,219 for an adult ED visit.

Table 1: Characteristics of Emergency Department Visits, 2006

	Pediatric			Adult		
	Inpatient ED Discharges	Outpatient ED Discharges	All Pediatric ED Discharges	Inpatient ED Discharges	Outpatient ED Discharges	All Adult ED Discharges
Emergency Department Visits						
Type of ED visit	77,843	1,424,788	1,502,631	1,239,818	4,074,861	5,314,679
Percent of ED Visit by Type	5.2%	94.8%	100.0%	23.3%	76.7%	100.0%
ED Visits per 1000 population	19	345	364	87	285	372
Inpatient Length of Stay (Mean)	3.6			5.2		
Charges (Mean)	\$17,700	\$1,068	\$1,930	\$32,346	\$2,182	\$9,219

Source: AHCA 2006 ED Data. Population statistics : The Florida Legislature, Office of Economic and Demographic Research

Patient Demographics

Table 2 contains pediatric and adult ED visits by gender. The rate of ED visits for boys was 6.3 percent greater than the rate for girls, while the rate for adult men was 13.2 percent less than the rate for adult women. There were significant differences in the utilization of EDs by boys and girls relative to their proportion of the Florida pediatric population. There was no significant difference between the average charges for boys' and girls' inpatient or outpatient ED visits. The average ED charges for boys and girls were a fraction of the average charges for men and women. The average charges for boys and girls were 19.1 percent and 21 percent of the average charges for men and women respectively.

Table 2: Emergency Department Discharges by Gender and ED Visit Category, 2006

	Pediatric			Adult		
	Inpatient ED Discharges	Outpatient ED Discharges	All Pediatric ED Discharges	Inpatient ED Discharges	Outpatient ED Discharges	All Adult ED Discharges
ED Visits by Gender						
Male	42,583	755,874	798,457	577,532	1,729,364	2,306,896
Female	35,260	668,914	704,174	662,270	2,345,481	3,007,751
Unknown				16	16	32
All ED Visits	77,843	1,424,788	1,502,631	1,239,818	4,074,861	5,314,679
Percentage of ED Visits by Gender*						
Male	**54.7%	**53.1%	53.1%	46.6%	**42.4%	43.4%
Female	**45.3%	**46.9%	46.9%	53.4%	**57.6%	56.6%
All ED Visits	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
ED Visits by Gender per 1000 populations*						
Male	20	358	378	84	250	334
Female	17	331	349	90	318	408
All ED Visits	19	345	364	87	285	372
Average Charge for ED Visits by Gender						
Boys	\$18,241	\$1,049	\$1,966	\$34,586	\$2,134	\$10,258
Girls	\$17,047	\$1,090	\$1,889	\$30,394	\$2,217	\$8,421
Unknown				\$15,464	\$953	\$8,208
All ED Visits	\$17,700	\$1,068	\$1,930	\$32,346	\$2,182	\$9,219

Source: AHCA 2006 ED Data. Population statistics : The Florida Legislature, Office of Economic and Demographic Research

* Excludes discharges with unknown gender.

** Difference between population rate and utilization rate is statistically significant at the .05 level.

Table 3 contains pediatric and adult ED visits by race/ethnicity. The rates of pediatric ED visits for blacks and Hispanics were significantly greater than their proportion of the 2006 Florida pediatric population (Table 9) while the rate of pediatric ED visits for whites was significantly less than their proportion of the pediatric population. The rate of ED visits for black and Hispanic children was also significantly higher than the rate for black and Hispanic adults, respectively. While black children had the highest rate of outpatient ED visits per 1000 population (431), their average charge was significantly less than the average outpatient ED charge.

Table 3: Emergency Department Discharges by Race/Ethnicity and ED Visit Category, 2006

	Pediatric			Adult		
	Inpatient ED Discharges	Outpatient ED Discharges	All Pediatric ED Discharges	Inpatient ED Discharges	Outpatient ED Discharges	All Adult ED Discharges
ED Visits by Race/Ethnicity						
Black	21,601	376,481	398,082	202,295	862,283	1,064,578
Hispanic	19,775	349,335	369,110	161,543	547,802	709,345
White	33,062	640,063	673,125	847,955	2,546,375	3,394,330
Other	2,955	48,110	51,065	22,678	90,956	113,634
Unknown	450	10,799	11,249	5,347	27,445	32,792
All ED Visits	77,843	1,424,788	1,502,631	1,239,818	4,074,861	5,314,679
Percentage of ED Visits by Race/Ethnicity*						
Black	**27.9%	**26.6%	26.5%	**16.4%	**21.3%	20.0%
Hispanic	**25.6%	**24.7%	24.6%	**13.1%	**13.5%	13.3%
White	**42.7%	**45.3%	44.8%	**68.7%	**62.9%	63.9%
Other	3.8%	3.4%	3.4%	1.8%	2.2%	2.1%
All ED Visits	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
ED Visits by Race/Ethnicity per 1000 populations*						
Black	25	431	456	101	432	534
Hispanic	20	358	378	60	204	264
White	15	299	315	91	273	364
Other	21	338	358	76	304	380
All ED Visits	19	345	364	87	285	372
Average Charge for ED Visits by Race/Ethnicity						
Black	\$18,428	\$987	\$1,934	\$32,486	\$1,969	\$7,768
Hispanic	\$18,189	\$1,072	\$1,989	\$33,567	\$2,592	\$9,646
White	\$16,829	\$1,115	\$1,887	\$31,982	\$2,165	\$9,614
Other	\$19,267	\$1,075	\$2,128	\$35,569	\$2,301	\$8,940
Unknown	\$14,988	\$935	\$1,497	\$34,266	\$1,839	\$7,126
All ED Visits	\$17,700	\$1,068	\$1,930	\$32,346	\$2,182	\$9,219

Source: AHCA 2006 ED Data. Population statistics : The Florida Legislature, Office of Economic and Demographic Research

* Excludes discharges with an unknown race/ethnicity.

** Difference between population rate and utilization rate is statistically significant at the .05 level.

Black is non-Hispanic black; Hispanic includes black Hispanic and white Hispanic; White is non-Hispanic white;

Other includes American Indian, Alaska Native, Asian, Pacific Islander, and all other racial/ethnic backgrounds not listed above.

Table 4 contains ED visits by age. Children ages under 1 and ages 1-4 had the highest pediatric ED visit rates. These two age groups also visited EDs at rates that were significantly higher than their proportion of the pediatric population, whereas; children ages 5 years and older had ED visit rates significantly lower than their percentage of the pediatric population. Although ED visit rates decreased with age, the average charge increased for both inpatient and outpatient ED visits.

Table 4: Emergency Department Discharges by Age and ED Visit Category, 2006

Age	Inpatient ED Discharges	Outpatient ED Discharges	All ED Discharges
ED Visits by Age			
Ages < 1	20,008	194,908	214,916
Ages 1-4	19,989	473,068	493,057
Ages 5-9	11,439	293,607	305,046
Ages 10-14	12,407	248,852	261,259
Ages 15-17	14,000	214,353	228,353
All Pediatric ED Visits	77,843	1,424,788	1,502,631
All Adult ED Visits	1,239,818	4,074,861	5,314,679
All ED Visits	1,317,661	5,499,649	6,817,310
Percentage of Pediatric ED Visits by Age			
Ages < 1	**25.7%	**13.7%	14.3%
Ages 1-4	**25.7%	**33.2%	32.8%
Ages 5-9	**14.7%	**20.6%	20.3%
Ages 10-14	**15.9%	**17.5%	17.4%
Ages 15-17	18.0%	*15%	15.2%
All Pediatric ED Visits	100.0%	100.0%	100.0%
ED Visits by Age per 1000 populations			
Ages < 1	85	828	913
Ages 1-4	23	548	571
Ages 5-9	10	260	270
Ages 10-14	11	211	222
Ages 15-17	19	296	315
All Pediatric ED Visits	19	345	364
All Adult ED Visits	87	285	372
All ED Visits	72	299	370
Average Charge for ED Visits by Emergency Status and Age			
Ages < 1	\$15,106	\$886	\$2,210
Ages 1-4	\$15,583	\$844	\$1,442
Ages 5-9	\$18,529	\$984	\$1,642
Ages 10-14	\$20,305	\$1,267	\$2,171
Ages 15-17	\$21,446	\$1,613	\$2,829
All Pediatric ED Visits	\$17,700	\$1,068	\$1,930
All Adult ED Visits	\$32,346	\$2,182	\$9,219
All ED Visits	\$31,481	\$1,893	\$7,612

Source: AHCA 2006 ED Data. Population statistics : The Florida Legislature, Office of Economic and Demographic Research

*Excludes discharges with unknown age

** Difference between population rate and utilization rate is statistically significant at the .05 level.

Table 5 contains ED visits by primary payer. Medicaid was the primary payer for approximately half of all pediatric ED visits, whereas, it was the primary payer for only 12.4 percent of adult ED visits. Children were less likely than adults to be uninsured.

Table 5: Emergency Department Discharges by Payer and ED Visit Category, 2006

Payer	Pediatric			Adult		
	Inpatient ED Hospitalization	Outpatient ED Visit	All Pediatric ED Visits	Inpatient ED Hospitalization	Outpatient ED Visit	All Adult ED Visits
ED Visits by Primary Payer						
Medicaid	42,490	706,301	748,791	123,942	536,616	660,558
Commercial	26,394	423,058	449,452	257,341	1,283,245	1,540,586
Kidcare	1,256	22,337	23,593	256	2,658	2,914
Charity / Self Pay	5,509	231,307	236,816	130,528	1,239,887	1,370,415
Other Governemnt	2,194	41,785	43,979	727,751	1,012,455	1,740,206
All ED Visits	77,843	1,424,788	1,502,631	1,239,818	4,074,861	5,314,679
Percentage of ED Visits by Primary Payer						
Medicaid	54.6%	49.6%	49.8%	10.0%	13.2%	12.4%
Commercial	33.9%	29.7%	29.9%	20.8%	31.5%	29.0%
Kidcare	1.6%	1.6%	1.6%	0.0%	0.1%	0.1%
Charity / Self Pay	7.1%	16.2%	15.8%	10.5%	30.4%	25.8%
Other Governemnt	2.8%	2.9%	2.9%	58.7%	24.8%	32.7%
All ED Visits	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total ED Charges by Primary Payer (in millions)						
Medicaid	\$737.82	\$685.28	\$1,423.10	\$4,123.66	\$1,034.36	\$5,158.02
Commercial	\$494.25	\$531.76	\$1,026.01	\$7,922.63	\$3,071.54	\$10,994.17
Kidcare	\$32.93	\$25.81	\$58.74	\$7.26	\$3.83	\$11.09
Charity / Self Pay	\$78.81	\$229.37	\$308.18	\$3,560.62	\$2,295.25	\$5,855.87
Other Governemnt	\$34.03	\$49.85	\$83.89	\$24,489.50	\$2,485.07	\$26,974.58
All ED Visits	\$1,377.84	\$1,522.08	\$2,899.92	\$40,103.67	\$8,890.05	\$48,993.72
Percentage of ED Charges by Primary Payer						
Medicaid	53.5%	45.0%	49.1%	10.3%	11.6%	10.5%
Commercial	35.9%	34.9%	35.4%	19.8%	34.6%	22.4%
Kidcare	2.4%	1.7%	2.0%	0.0%	0.0%	0.0%
Charity / Self Pay	5.7%	15.1%	10.6%	8.9%	25.8%	12.0%
Other Governemnt	2.5%	3.3%	2.9%	61.1%	28.0%	55.1%
All ED Visits	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: AHCA 2006 ED Data. ED admissions with unknown payer are excluded.

Payer is the primary source of expected reimbursement.

Medicaid includes Medicaid and Medicaid HMO; Commercial includes Commercial insurance, HMO, and PPO;

Kidcare includes Healthy Kids, Medikids, and Children's Medical Services.

Charity/ Self-Pay includes an insurance status of charity, self-pay, and under-insured.

Other Government includes Medicare, Medicare HMO, Medicare PPO, CHAMPUS/TRICARE, VA, Workers' Compensation, other Government, other payer.

Reasons for ED Visits

Table 6 and Table 7 show ED visits by major diagnosis categories for pediatric and adult outpatient ED visits, respectively. The MDC category Injury and poisonings was the top category for children (27.5 percent) and adults (25.8 percent) with the average adult charge being 1.5 times the average charge for a child. The top three primary diagnosis categories were common for pediatric and adult outpatient ED visits. The top three diagnosis categories accounted for 65 percent of pediatric visits and nearly 50 percent of adult visits with the average charge for adult visits nearly twice the average charge for pediatric visits. The pediatric discharge rate and the population rate is significantly higher than the adult rate for each of the top 3 diagnosis categories.

Table 6: Pediatric Outpatient ED Discharges by Major Diagnosis Categories², 2006

MDC	Major Diagnosis Category	Pediatric ED Visits	Percent of ED Visits	Discharges per 10000 Population	Average Charge
16	Injury and poisoning	391,727	27.5%	948	\$1,159
8	Diseases of the respiratory system	327,758	23.0%	794	\$881
17	Symptoms; signs; and ill-defined conditions and factors influencing health status	208,458	14.6%	505	\$1,180
6	Diseases of the nervous system and sense organs	162,459	11.4%	393	\$824
9	Diseases of the digestive system	98,576	6.9%	239	\$1,235
1	Infectious and parasitic diseases	65,864	4.6%	159	\$804
12	Diseases of the skin and subcutaneous tissue	46,391	3.3%	112	\$686
10	Diseases of the genitourinary system	39,577	2.8%	96	\$1,793
13	Diseases of the musculoskeletal system and connective tissue	25,621	1.8%	62	\$1,079
7	Diseases of the circulatory system	10,834	0.8%	26	\$1,714
5	Mental illness	10,408	0.7%	25	\$1,824
11	Complications of pregnancy; childbirth; and the puerperium	9,375	0.7%	23	\$2,012
3	Endocrine; nutritional; and metabolic diseases and immunity disorders	9,204	0.6%	22	\$2,080
15	Certain conditions originating in the perinatal period	8,186	0.6%	20	\$847
18	Residual codes; unclassified; all E codes.	6,879	0.5%	17	\$718
4	Diseases of the blood and blood-forming organs	2,143	0.2%	5	\$2,310
14	Congenital anomalies	706	0.0%	2	\$1,651
2	Neoplasms	458	0.0%	1	\$1,511
	Total	1,424,624	100%	3,449	\$1,068

Source: AHCA 2006 ED Data. Population statistics : The Florida Legislature, Office of Economic and Demographic Research

² Major Diagnosis Categories group diagnoses by the ICD-9-CM Diagnosis Chapter.

Table 7: Adult Outpatient ED Discharges by Major Diagnosis Categories, 2006

MDC	Major Diagnosis Category	All Adult ED Visits	Percent of ED Visits	Discharges per 10000 Population	Average Charge
16	Injury and poisoning	1,051,370	25.8%	736	\$1,809
17	Symptoms; signs; and ill-defined conditions and factors influencing health status	475,339	11.7%	333	\$2,648
8	Diseases of the respiratory system	406,995	10.0%	285	\$1,624
13	Diseases of the musculoskeletal system and connective tissue	333,160	8.2%	233	\$1,428
6	Diseases of the nervous system and sense organs	330,240	8.1%	231	\$2,112
10	Diseases of the genitourinary system	315,537	7.7%	221	\$3,010
7	Diseases of the circulatory system	271,278	6.7%	190	\$4,384
9	Diseases of the digestive system	263,778	6.5%	185	\$2,418
12	Diseases of the skin and subcutaneous tissue	185,920	4.6%	130	\$1,004
11	Complications of pregnancy; childbirth; and the puerperium	147,642	3.6%	103	\$2,184
5	Mental illness	122,803	3.0%	86	\$2,215
3	Endocrine; nutritional; and metabolic diseases and immunity disorders	56,809	1.4%	40	\$2,418
1	Infectious and parasitic diseases	52,602	1.3%	37	\$1,284
18	Residual codes; unclassified; all E codes.	41,314	1.0%	29	\$1,744
4	Diseases of the blood and blood-forming organs	11,597	0.3%	8	\$2,821
2	Neoplasms	6,913	0.2%	5	\$3,474
14	Congenital anomalies	759	0.0%	1	\$4,089
15	Certain conditions originating in the perinatal period	122	0.0%	0	\$2,446
	Total	4,074,178	100%	2,851	\$2,182

Source: AHCA 2006 ED Data. Population statistics : The Florida Legislature, Office of Economic and Demographic Research

Table 8 contains the top 20 conditions resulting in ED visits. Acute or preventable conditions such as asthma, infections, and injuries were among the top 20 reasons for pediatric emergency department visits.

Table 8: ED Discharges Top 20 Conditions³, 2006

Pediatric Conditions (CCS Code)	Pediatric ED Visits	Pecent of ED Discharges	Adult Conditions (CCS Code)	Adult ED Visits	Pecent of ED Discharges
Other upper respiratory infections	178,927	11.9%	Sprains and strains	283,000	5.3%
Otitis media and related conditions	97,590	6.5%	Superficial injury; contusion	238,380	4.5%
Superficial injury; contusion	95,367	6.3%	Abdominal pain	208,019	3.9%
Fever of unknown origin	72,511	4.8%	Nonspecific chest pain	206,944	3.9%
Open wounds of head; neck; and trunk	64,502	4.3%	Skin and subcutaneous tissue infections	178,175	3.4%
Sprains and strains	55,567	3.7%	Spondylosis; intervertebral disc disorders; other back problems	175,285	3.3%
Viral infection	53,717	3.6%	Open wounds of extremities	160,090	3.0%
Noninfectious gastroenteritis	46,060	3.1%	Urinary tract infections	134,704	2.5%
Other injuries and conditions due to external causes	44,207	2.9%	Other upper respiratory infections	127,956	2.4%
Fracture of upper limb	43,921	2.9%	Headache; including migraine	124,509	2.3%
Open wounds of extremities	41,083	2.7%	Other aftercare	92,702	1.7%
Asthma	40,524	2.7%	Other connective tissue disease	89,699	1.7%
Skin and subcutaneous tissue infections	34,198	2.3%	Chronic obstructive pulmonary disease and bronchiectasis	88,707	1.7%
Nausea and vomiting	33,886	2.3%	Other complications of pregnancy	85,588	1.6%
Abdominal pain	33,200	2.2%	Disorders of teeth and jaw	82,403	1.6%
Acute bronchitis	31,390	2.1%	Other injuries and conditions due to external causes	80,773	1.5%
Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	29,304	2.0%	Open wounds of head; neck; and trunk	76,874	1.4%
Allergic reactions	27,501	1.8%	Other lower respiratory disease	75,218	1.4%
Other aftercare	23,459	1.6%	Cardiac dysrhythmias	71,248	1.3%
Urinary tract infections	21,573	1.4%	Fracture of upper limb	69,192	1.3%
All Other Conditions	433,980	28.9%	All Other Conditions	2,664,530	50.1%
All Conditions	1,502,467	100.0%	All Conditions	5,313,996	100.0%

Source: AHCA 2006 ED Data. Population statistics : The Florida Legislature, Office of Economic and Demographic Research

³ Agency for Healthcare Research and Quality Clinical Classifications Software (CCS) is used to group medical conditions.

Table 9: Florida Population Estimate, 2006

Pediatric Population Estimates			Adult Population Estimates		
	Population Estimate	Pecent of Pediatric Population		Population Estimate	Pecent of Adult Population
Gender Population Estimate, 2006					
Male	2,109,908	51.1%	Male	6,914,748	48.4%
Female	2,020,520	48.9%	Female	7,376,569	51.6%
Total	4,130,428	100.0%	Total	14,291,317	100.0%
Racial Group Population Estimate, 2006					
Black	873,049	21.1%	Black	1,995,074	14.0%
Hispanic	977,127	23.7%	Hispanic	2,681,918	18.8%
White	2,137,708	51.8%	White	9,315,345	65.2%
Other	142,544	3.5%	Other	298,980	2.1%
Total	4,130,428	100.0%	Total	14,291,317	100.0%
Age Group Population Estimate, 2006					
under 1	235,340	5.7%	18 and over	14,291,317	100.0%
1-4	863,106	20.9%			
5-9	1,129,940	27.4%			
10-14	1,176,721	28.5%			
15-17	725,321	17.6%			
Total	4,130,428	100.0%			

Data Source: The Florida Legislature, Office of Economic and Demographic Research